



Joint Warfare System (JWARS)

**Update to the
Executive Forum
on Modeling and Simulation
May 30, 2001**

**Don Bates
JWARS Office**

Web Site:

<https://www.jointmodels.mil/jwars>



Agenda

- **Background**
- **Management**
- **Technical
Overview**
- **Schedule**



History

Calendar Year

1995

1996

1997

1998

1999

JWARS Operational Requirements Document (ORD) was approved by Joint Requirements Oversight Council (JROC).

DepSecDef designated Joint Data Support (JDS) as primary data support agency for JAMIP.

Deputy Secretary of Defense (DepSecDef) initiated Joint Warfare System (JWARS) development as one component of Joint Analytic Model Improvement Program (JAMIP).

Prototype
Development

Production
Development



Mission

Mission: **Develop a state-of-the-art, constructive simulation that will:**

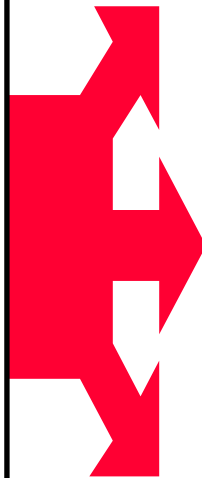
- ***Provide a multi-sided and balanced representation of joint theater warfare***
- ***Be able to assess current and future operational concepts to include Joint Vision 2010's:***

Dominant Maneuver, Precision Engagement, Focused Logistics, and Full-Dimension Protection

- ***Use C4 and ISR as the foundation for how entities perceive and interact with one another***

Users

- **Joint Staff**
- **Services**
- **CINCs**
- **OSD**
- **Joint Task Forces**
- **Other DoD org's**



Applications

- 1. Force assessment**
- 2. Planning and execution**
 - ***Deliberate planning***
 - ***Crisis action planning***
- 3. System effectiveness and trade off analysis**
- 4. Concept and doctrine development and assessment**



Requirements - Warfare Functionality

(slide 1 of 2)

- **Release 1 (Limited IOC)**
 - Include C4, ISR, logistics, and essential functionality in legacy simulations TACWAR and MIDAS.
 - Be capable of replacing TACWAR for force assessment application.
- **Release 2 (Full IOC)**
 - Provide balanced warfare representation, including C4, ISR, logistics.
 - Be capable of supporting the applications--
 1. Force assessment.
 2. Planning and execution.
 - Be capable of replacing TACWAR and MIDAS.
- **Release 3 (FOC)**
 - Provide balanced warfare representation, including C4, ISR, logistics.
 - Be capable of supporting the applications--
 1. Force assessment.
 2. Planning and execution.
 3. System effectiveness and trade-off analysis.
 4. Concept and doctrine development and assessment.
 - Be capable of replacing legacy simulations CEM, Thunder, ITEM, and SUMMITS.



Requirements - Warfare Functionality

(slide 2 of 2)

JWARS

- Destruction of strategic / theater deployment assets
- Disruption of strategic / theater deployment network

Resupply requirements

Resupply requirements

Strategic Logistics

(Strategic movement of units and supplies from POE to POD)

- Intended to replace MIDAS simulation

Theater Logistics

(Within theater movement of units and supplies)

- Intended to replace SUMMITS simulation

Joint Warfighting

(Combat, maneuver, C3)

- Intended to replace TACWAR, CEM, Thunder, and ITEM simulations

Perception



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JAMIP Management

- Overall guidance
- Decision authority

**Executive
Committee**

- Routine guidance

**Steering
Committee**

**Near-Term
Enhancements**
*Joint Staff / J-8
lead*

JWARS
PA&E lead

**Joint Data
Support**
PA&E lead

Field Support
*Joint Staff / J-8
lead*

Requirements Integrated Product Team (IPT) and Joint Warfare Refinement G
Joint Staff / J-8 lead



JWARS Office

Integrated Government-Contractor Facility

(Arlington, VA)

Director

Dr. Jim Metzger

Deputy Director

CDR Boots Barnes,
USN

**Assistant
Director**

Mr. Don Bates

*Rotated
among
Services*

Government - Assigned

- LtCol Greg McIntyre, USAF
- CDR Boots Barnes, USN
- LTC George Stone, USA
- Major Lloyd Brown, USMC

Contractors

- Development 43
(GRCI, CACI)
- Data Support 6
(GRCI, Unisys)
- Training & Installation 7
(GRCI, CACI, Logicon)
- C4ISR Development 2
(Mitre)
- Administrative Support 5
(Unisys)
- Computer Support 6
(ASD, VGS)

Government - Augmentation

- Mr. Bruce Besore, JS / J-8
- Mr. John Shepherd, USA CAA
- Mr. Cortez Stephens, USMC (COTS)
- Mr. Darrell Lucas, USAF MSEA (DRC)



Collaborative Development Process

• Activities

- Requirements definition and refinement

JS/J-8 (SAMD, WAD)

- Design and implementation

- Data development

V&V Agent (Oct 97-

- Verification and validation

OT&E by ATEC and AFOTEC

- Test and evaluation

- ATEC is Lead Test Agency

• Participants

- JWARS Office

- Joint Data Support (JDS)

- Future users

- ✓ Joint Staff

- ✓ OSD

- ✓ Services

- ✓ CINCs

JWARS Study Team (JST)

- Created in 1999

- Group of future users

Charter: Improve the Quality and Consistency of DoD Analyses

- Provide and manage data for DoD analytical studies

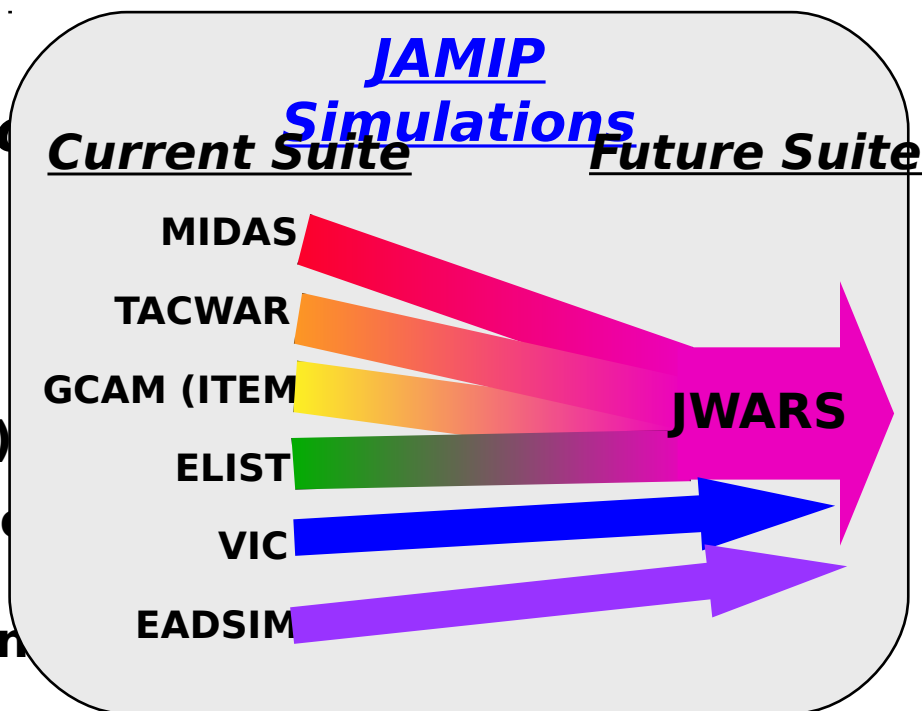
- *Broad customer base (Joint Chiefs, CinCs, OSD)*

- *Supporting*

- Studies using JAMIP simulations (e.g., MRS-05)

- Studies using other decision support processes (e.g., Dynamic Commitment)

- *Support JWARS*





JWARS V&V and T&E

Verification and Validation (V&V)

- **Activities (described later) performed during development by JWARS V&V Agent, users, and subject matter experts**
- **Documented by JWARS V&V Agent**

Test and Evaluation (T&E)

- **Developer testing - by development contractor for JWARS Office**
 - ***During development***
 - ***Prior to each release***
- **External testing - by selected user sites, at each of Limited IOC, Full IOC, and FOC.**
 - ***Beta testing***

Operational Test and Evaluation (OT&E)



Release 1 Test and Evaluation

Objective

- **Ensure that ORD requirements are satisfied**

Process

- **Installation and training for user test sites**
- **Beta testing by user test sites**
- **Operational testing by user test sites, overseen by Services' Operational Test Agencies (Army lead)**

Participating user sites

**ODPA&E (SAC) JS (J-8) USAF (AFSAA) USA
(CAA)**

**USN (N81) USMC (MCCDC) USCENTCOM
USSOCOM**

USTRANSCOM USPACOM USFK



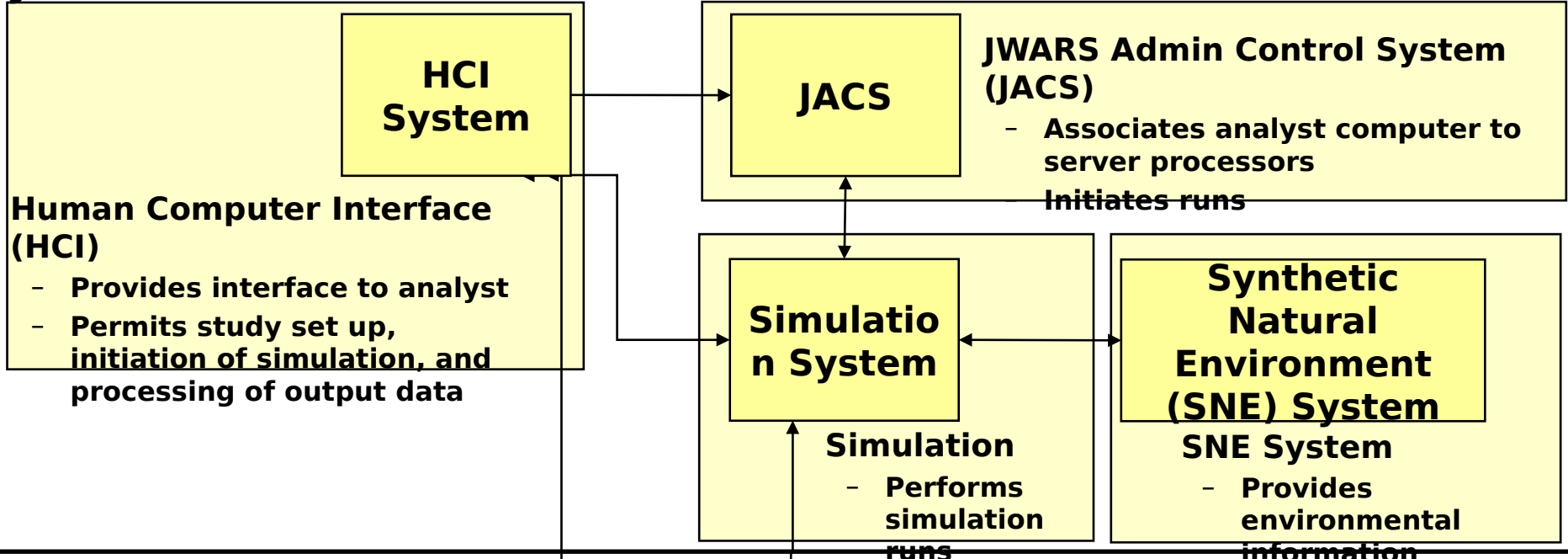
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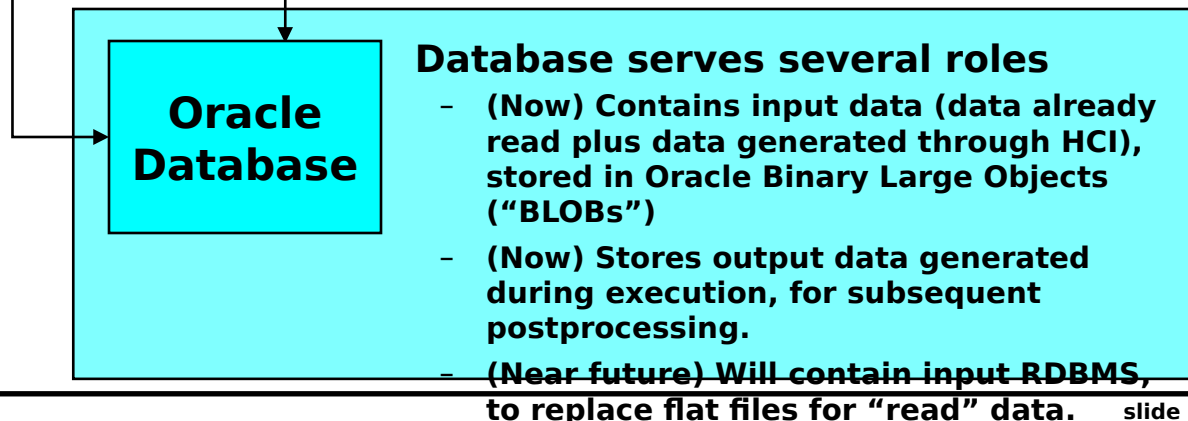


JWARS Architecture - System View

JWARS



External Access

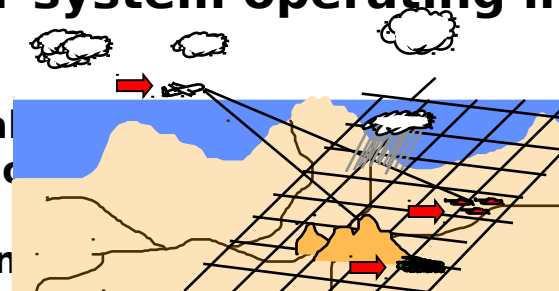




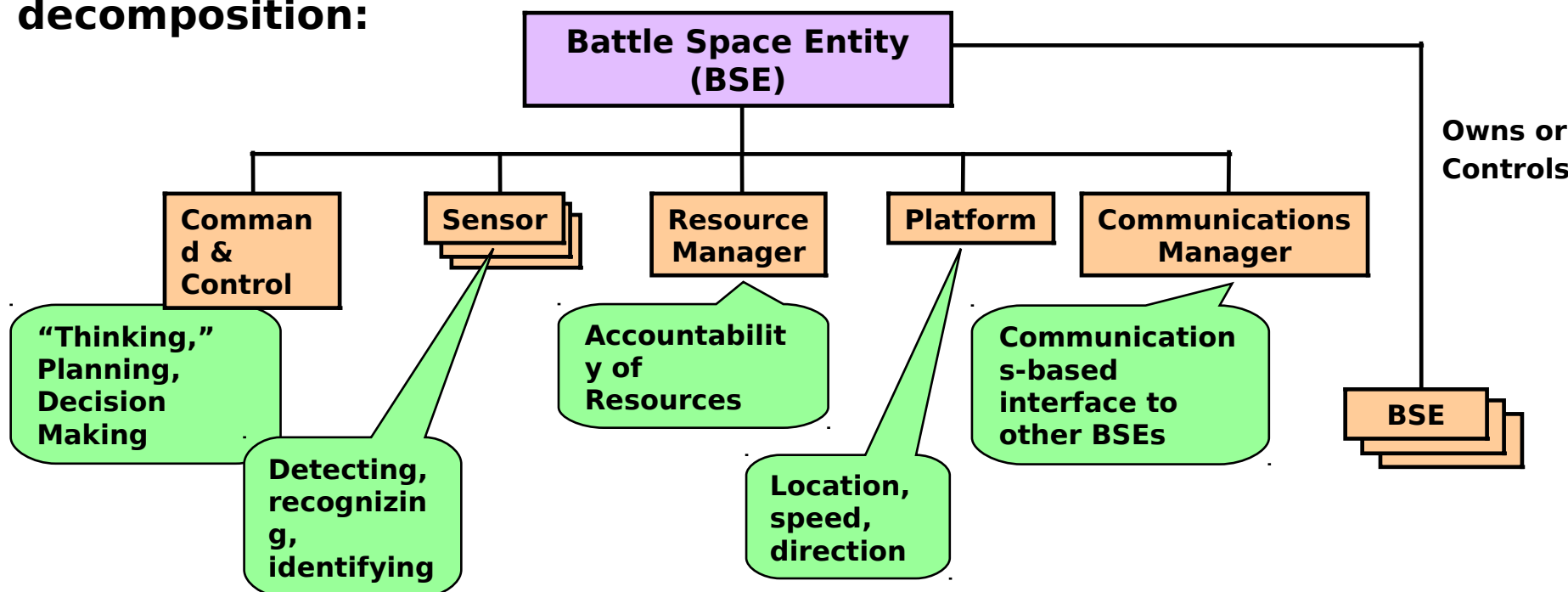
Fundamental Component -- Battle Space Entity (BSE)

- BSE -- a friendly unit, enemy unit, or major system operating in the battle space. Examples:

- Operational Headquarters - Land: Maneuver Battalion
- Strategic aircraft and ships - Air: Air Mission
- Airbases and seaports - Space: Sensor Satellite
- Maritime: Ship, Submarine

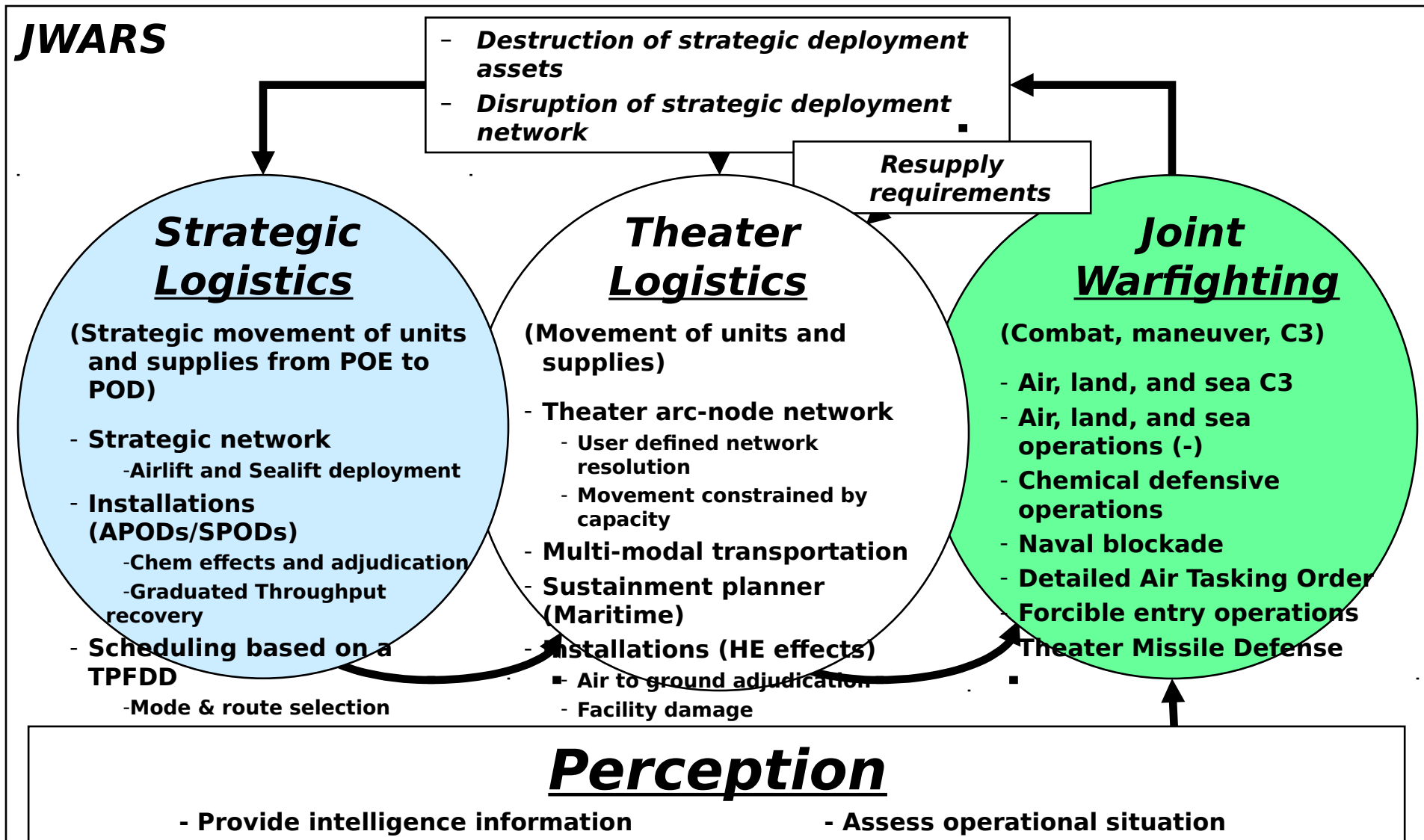


- Represented as a “composite software object.” Top-level decomposition:





Release 1 Warfare Functionality - Summary





Release 1.3 Warfare Functionality - Summary

Major module	Functionality	Release 1.3 content
Strat. Deployment	Strategic flow from POE to POD	simulated in playbox only
	Strategic network	✓
	Air and sea PODs	basic ¹
Theater Trans & Logistics	Integrate units into theater	✓
	Intratheater network	✓
	Logistics distribution	yet to be implemented
Perception	Provide intelligence information	✓
	Assess operational situation	✓
	Communicate	✓
Operations maritime)	Command and control	✓ (theater, land, air,
	Air Tasking Order	✓ ²
	Interdiction and counter air	basic ²
	Maritime warfare	SUW, USW, blockade ³
	Land warfare	basic ⁴
	Firepower and close air support	✓
	Theater ballistic missile defense	basic ²
	Suppression of enemy air defense	yet to be implemented
	Chemical defense	✓
	Forcible entry	✓

Notes: 1. More detailed representations of APOD and SPOD operations will be incorporated in Release 2.
 2. Representations of Integrated Aerospace Defense and Airspace Control remain to be incorporated.
 3. Countermine operations remain to be incorporated in Release 2.
 4. Mobility/counter mobility operations remain to be incorporated in Release 2.



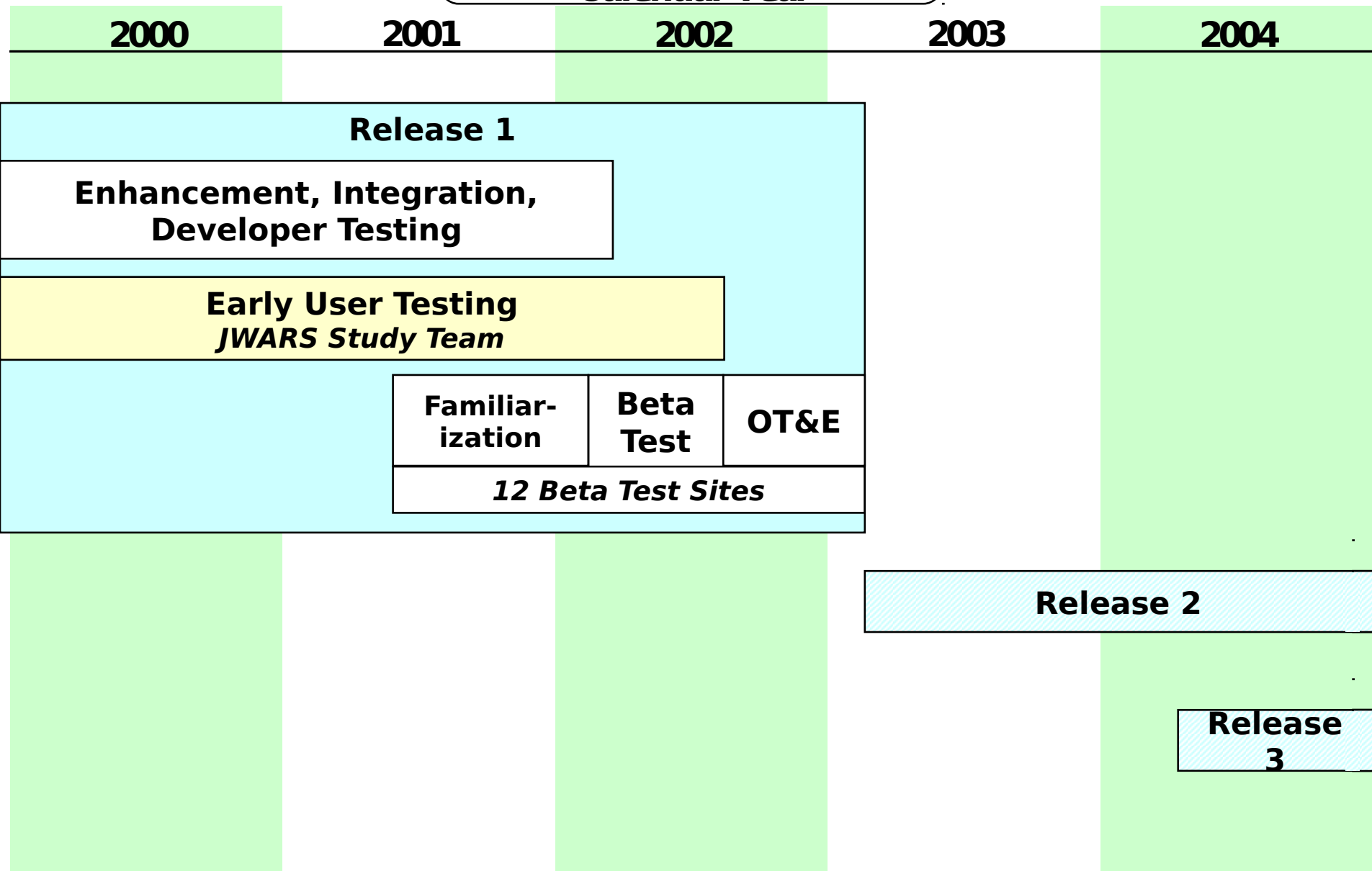
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Macro Schedule

Calendar Year





Near Term Schedule

- **Release 1.3**
 - **Developer Testing completed in April 2001**
 - **Training and Installation began in May 2001**
 - **Distribution to requesting Beta Test sites for familiarization**
- **Release 1.4**
 - **Will include warfare functionality of Limited IOC**
 - **Completion date: *to be determined* date in 2002**
 - **Affected by possible assessments by JWARS Study Team**
 - **Distribution to Beta Test sites for Beta Testing**
- **Release 1.5**
 - **Will include changes resulting from Beta Testing**
 - **Estimated date: *to be determined* date, dependent on Release 1.4**
 - **Distribution to Beta Test sites for OT&E**



JWARS Payoff - Improved Analytic Support

JWARS

- **Constructive simulation of joint theater-level warfare**
- **Balanced**
- **C4 and ISR foundation**

Users

- **Joint Staff**
- **Services**
- **CINCs**
- **OSD**
- **Joint Task Forces**
- **Other DoD organizations**
- **Industry**

Applications

- 1. Force assessment**
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